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Islamic Integrated Information Communication Technology Mathematics Learning Model for Students' Creativity and Environmental Awareness

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ABSTRACT

Mathematics teachers in integrated Islamic schools in Maluku are having problems implementing the integration of Islam into mathematics learning. This study aims to develop a learning model based on Islamic Integrated Information Communication Technology (IICT) to help teachers increase creativity in mathematical problem solving and students' environmental awareness. The main output of this research is an ICT-based active learning model that integrates Islamic sciences into mathematics learning to support the development of creativity skills in solving mathematical problems and students' environmental awareness at an early age. The development of the learning model in this study is a combination of the Plomp (2013), Dick & Carey (2015), and Joyce et al. (2009). Plomp's model was used for the research and model development phase, Dick & Carey for instructional design, and Joyce et al. for the model's contents. The resulting model is an adaptation of the hierarchical and procedural combination of the three developments. The research subjects are mathematics teachers and students. The data analysis technique used is the analysis of the instrument's validity, the IICT model, the practicality, and the effectiveness of the IICT model. Based on expert validation and testing results, the resulting model meets the needs of mathematics teachers and students of SMP/MTs in an integrated Islamic school environment. The results showed that the IICT learning model was qualified to help teachers integrate Islam in mathematics learning, increase creativity in solving math problems, and students' environmental awareness.

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A. INTRODUCTION

The importance of providing an early understanding of the environment to the community is a big effort that needs to be done immediately to protect the environment (Šorytė & Pakalniškienė, 2019). However, direct observations at several secondary schools in Maluku, especially in Ambon, show that students' environmental awareness is still low. This also happened in several countries (Ali, 2015; Aliman et al., 2019; Kaur, 2017). In addition, his research (Ali, 2015) found that high school student's level of environmental awareness is still low and is below the average category. Another thing that was found (Jusoh et al., 2018) by

that the description of the level of environmental awareness among students is that they have a high level of knowledge but a moderate level of practice, so it is important to foster community attitudes and behaviour, especially high school students. This shows the need for innovative strategies to overcome these problems; namely, more concrete efforts are needed to increase students' overall environmental awareness. This strategy will be effective if it is carried out through classroom education (Zaenuri et al., 2017). The step needed is guiding from the start, which is the key to shaping attitudes and behaviour towards the environment (Marcinkowski & Reid, 2019).

Another thing that is important to be introduced early to students is creativity (Al-Mahasneh, 2018; Ata-Aktürk & Sevimli-Celik, 2020; Kupers et al., 2019) because creativity is needed in every aspect of life. A prerequisite for individuals to solve problems is determining the nation's superiority or competitiveness (Nakano & Wechsler, 2018). Many research results have highlighted the importance of school culture in supporting or inhibiting creativity, the need to bring up teachers' conceptions of creativity, and teachers developing their creativity (Al-Mahasneh, 2018; Morais et al., 2019; Moraru, 2019).

Teaching creativity to students is very important (Masadeh, 2021), further according to (Masadeh, 2021) teachers must teach creative mathematics. To create a creative classroom environment, teachers need to have a specific school culture, knowledge of pedagogical content about creativity, and pedagogical practices that foster creativity. Measuring the success of teachers and students in learning mathematics with creativity is a very important thing to consider (Naz & Murad, 2017) because creativity or creative thinking in mathematics is an important thing to develop. After all, creativity is an integral part of mathematics (M. F. Ayllón et al., 2016; Novita & Putra, 2016). However, the results of the analysis of the needs of students in secondary schools in Maluku show that their creative thinking skills in solving mathematical problems are still very lacking. This incident is in line with the findings of several research results on the problem of high school students' creativity (Bahrudin & Siswono, 2020; Damayanti et al., 2018; Ratnaningsih, 2018). In his research (Bahrudin & Siswono, 2020) found that students' creativity problems were because students were unable to understand the purpose of the problem and only gave one solution idea. Similar things were found (Damayanti et al., 2018) in the problem of student creativity; namely, there was no association between students' mathematical creative thinking abilities and learning independence. Thus, this indicates the need for a learning model to solve problems and increase students' creativity in solving mathematical problems.

Several research results found that the integration of information and communication technology increased students' mathematical creativity in solving mathematical problems (Nurzulifa & Dwijanto, 2021; Qadri et al., 2019; Ummah et al., 2019). Therefore, teachers are required to strive for the integration of technology and communication into daily learning activities (Faisal & Martin, 2019). Further research in several countries reveals that general science teachers are also required to integrate learning with Islam (Hidayaturrahman et al., 2021; Muspiroh, 2019). On that basis, we need a learning model that can accommodate integrated learning between information communication technology, Islam, and students' environmental awareness.

Many studies related to the paradigm and concept of integrating science and its implementation in curriculum design and learning processes have been carried out, but these studies tend to focus on the monolithic understanding of each educational institution (Asfar et al., 2019; Kelley & Knowles, 2016; Zulkifli et al., 2020). Furthermore, the findings show that the integration of religion and science in some educational institutions is still poor (Subchi, 2020). However, in contrast to all of that, this study attempts to analyze various conceptions of the integration of mathematics and Islam, technology, and students' environmental awareness in obtaining mathematical learning models. This learning model helps teachers

integrate Islam with mathematics, overcomes students' creativity problems in solving mathematical problems, and increases students' environmental awareness.

Besides the support from many studies on the positive impact of using technology in this mathematics learning model (Alabdulaziz, 2021; Hillmayr et al., 2020). There is also support that shows the need to integrate religion with the learning environment (Abdillah et al., 2020). Thus, this research has great significance for the world of education and nations to help teachers integrate Islam into mathematics learning, increase students' creativity and environmental awareness, and achieve international priorities.

Based on these problems, this research problem is how does the learning development model that integrates Islam in learning mathematics increase students' creativity in solving math problems and increase students' environmental awareness? So that the results of this study can be used as a reference for an active ICT-based learning model that integrates Islamic sciences into mathematics learning to support the development of creative abilities in solving mathematical problems and students' environmental awareness at an early stage.

B. METHODS

This research is a combination of several types of Research & Developmental (R&D) (Akker et al., 2013), namely the development of the learning model in this study using the Plomp and Bannan design (Akker et al., 2013). In addition, this development research combines the elements of learning development proposed by (Joyce et al., 2009), the development of an instructional learning system by (Dick et al., 2015), and the development of learning materials (products) by Nieveen (Akker et al., 2013).

The IICT model development procedure consists of two stages, namely the pre-development stage and the development stage. The pre-development stage includes initial investigation, design, and realization. The development phase includes tests, evaluations, and revisions. This stage focused on field trials consisting of individual trials, small group trials and expanded trials. Product testing is a development stage activity that includes: test, evaluation, and revision stages. The development stage was carried out to test the quality of the IICT model, whether it met the criteria of being valid, practical, and effective.

The research subjects were mathematics teachers and students of SMP/MTs in Ambon City. The schools that were tested were (1) SMP As-Salam Ambon, MTs Negeri Batu Merah Ambon, and MTs Ishaka Ambon. The reason for choosing the three schools is because all three are integrated Islamic schools—types of data collected in this study in the form of quantitative and qualitative data. The data provides information or an overview of the developed learning model's validity, practicality, and effectiveness. The data collected in this study are in the form of quantitative and qualitative data. The data provides information or an overview of the developed learning model's validity, practicality, and effectiveness. The instruments used are instrument validation sheet, learning device validation sheet, model validation sheet, model practical assessment sheet, model implementation observation sheet, teacher ability observation sheet to manage and integrate learning, student activity observation sheet, student response questionnaire to learning, questionnaire students' environmental awareness, tests and rubrics for assessing students' creativity in solving mathematical problems. The validity category of each aspect or all aspects assessed is determined based on the categorization criteria adapted from the categorization according to (Bloom et al., 1981) as follows: $0{,}80 < Va \leq 1{,}00$ (Very Valid); $0{,}60 < Va \leq 0{,}80$ (Valid); $0{,}40 < Va \leq 0{,}60$ (Quite Valid); $0{,}20 < Va \leq 0{,}40$ (Less Valid); $0{,}00 < Va \leq 0{,}20$ (Not Valid). **Note:** Va is the average validation score of each aspect assessed

The criteria used to decide that the instrument used has an adequate degree of validity if the value of Va is in the minimally valid category. Furthermore, to determine the level of

instrument reliability using the percentage of agreements by (Grinnell & Unrau, 2005) with the following formula:

$$percentage\ of\ agreements\ (R) = \frac{agreements\ (A)}{disagreements\ (D) + agreements\ (\mathrm{A})} \times 100\%$$

Information: A is the frequency of the match between the data of two validators/observer; *D* is the frequency magnitude that does not match the data between the two validators/observers; and *R* is the coefficient (degree) of instrument reliability.

The criteria for the instrument sheet are said to be reliable if the reliability value is R $\geqslant$ 0.70 (Nitko & Brokhart, 2007). The analysis of the practicality/implementation of the IICT model is reviewed based on: (1) actually in the field the IICT model can be implemented (according to the test results), with all aspects observed at least including the category of partially implemented; and (2) the ability of teachers to manage learning is included in the category of at least quite.

The category of implementation of each aspect or all aspects of the IICT model is determined based on the quality criteria for developing an instructional learning system adapted from the categorization according to (Bloom et al., 1981) as follows: 1,5 $\leqslant$ T $\leqslant$ 2,0 (fully implemented); 0,5 $\leqslant$ T $\leqslant$ 1,5 (partially implemented); 0,0 $\leqslant$ T $\leqslant$ 0,5 (not implemented). Note: T stands for Execution. The criteria used to state that the IICT model is implemented if the minimum T value is partially implemented. However, if the value of T is in the category of not being implemented, it is necessary to re-examine the aspects that are not implemented. Furthermore, observations of learning using the revised IICT model were carried out, then re-analyzed. And so on until it meets the criteria for the minimum T value in the partially implemented category.

Data analysis of the teacher's ability to learn is done by looking for category values from several aspects of the assessment given based on the lesson plan. The value of the teacher's ability (KG), then referred to the interval of quality criteria for the development of learning instructional systems adapted from (Bloom et al., 1981) for the level of educators' ability to manage to learn, namely: 4,5 < KG $\leqslant$ 5 (very good); 3,5 < KG $\leqslant$ 4,5 (good); 2,5 < KG $\leqslant$ 3,5 (quite good); 1,5 < KG $\leqslant$ 2,5 (less good); 0,0 < KG $\leqslant$ 1,5 (not good). Note: KG is the value of the ability of educators. The criteria for the teacher's ability to manage to learn, if every aspect assessed for the level of KG achievement meets the minimum criteria is quite good. The IICT model is said to be effective if operationally in the field the model gives results as expected based on trials and analyzed using SPSS 15.0 software, while the indicators are as follows:

(1) students' environmental awareness during and after learning, used observation sheets and student environmental awareness questionnaires in learning. The criteria for increasing students' environmental awareness is the positive percentage difference for each meeting session. If the students' environmental awareness criteria have not increased, the researchers will review (revised) the IICT model guidelines and learning tools. Furthermore, a re-test is carried out which aims to meet the criteria. (2) The results of the achievement of students' creativity in solving mathematical problems to determine the effectiveness of the IICT model with the achievement of creativity. The test is carried out at the end of the sub-discussion to measure whether students have been creative or not. The criteria for the test of student creativity in learning, if at least 80% of all students who obtain the minimum criteria are creative from the very creative, creative, quite creative, less creative, and not creative categories. The creative minimum criterion is the Minimum Completeness Criteria (KKM) used in the pilot school.

C. RESULT AND DISCUSSION

The first step of this research is an initial investigation carried out to find out the initial state that occurred in the research subject. Next is the design of models, devices, and instruments. Before being tested, all instruments, IICT model guidelines, and learning tools have been validated by experts & practitioners according to their expertise. After the validation stage, the activities carried out were individual trials, small group trials (limited trials), and expanded trials (field trials).

1. Preliminary Investigation Results

Initial investigations of collecting information on the needs of students and teachers through questionnaires, tests, interviews, and direct observations were conducted on 81 students in three schools. The results obtained information on the needs of students and teachers in learning mathematics, environmental awareness, and the level of student's creative thinking skills in solving mathematical problems are presented in Table 1 below:

Table 1. Results of The Analysis of Student and Teacher Needs

No	Aspect	Average	Criteria
1	Concern for environmental issues	37	Very less
2	Awareness due to the problem of plastic waste in the environment	47	Very less
3	Students have not maximized the disposal of plastic waste in its place	44	Very less
4	Students agree to the statement of the need for environmental improvement	79	Good
5	Students agree on the need to manage waste around the school into valuable useful	71	Good
6	Ability to think creatively in solving math problems	22	Very less
7	Analysis of student needs in learning mathematics at school	56,30	Less
8	Analysis of teacher needs in learning mathematics at schools	55,74	Less
9	Management of learning in schools		
	a. Planning	83,22	Very good
	b. implementation	67,34	Less
	c. Evaluation	78,65	Very good

Table 1 informs that the average environmental awareness of high school students is still lacking. The majority of students agree on improving the environment through classroom learning and waste management around schools into useful goods. Creative thinking skills in solving math problems are still lacking, and all teachers need examples of mathematics learning models integrated with the environment and Islam in schools.

2. Results of Student Needs Analysis

Table 1 illustrates that, in general, students' environmental care and awareness is still low. Students state the need for environmental management and improvement with a set of rules at school. Furthermore, the results of the students' creative thinking ability level test in solving mathematical problems showed that the majority of students were in the category of less creative and non-creative thinking levels.

Analysis of student needs consists of indicators of the availability of teacher time specifically to discuss each learning competency, availability of teacher time for consultation, providing feedback after each independent task, giving teacher feedback after each completion of questions, providing material by the teacher in the form of textbooks, independence of the material provided by the teacher, the adequacy of references, the up-to-dateness of the references provided. The interactivity of each learning topic with friends, the frequency of having difficulty discussing with friends, difficulty in discussing with friends obtained an overall average score of 56.30; in this case, the criteria were lacking. Statement of approval if IT-based learning using PowerPoint integrated Islamic learning is available in schools. Teachers provide independent assignments and questions through student worksheets and are willing to use IT-based mathematics learning software through Geogebra.

Based on the answers given by students, it can be seen that, in general, students feel that the teacher has provided time, provided feedback on what was done, provided sufficient material for them. However, most students think that the references and learning resources provided are insufficient because they have not used much technology such as mobile phones or computers. In addition, the updating of learning resources has not been adequate. Most of the students agreed that the teacher gave independent assignments through power points facilitated by IT-based mathematics learning software through Geogebra and audiovisuals to be done independently, interacting with friends and teachers.

3. Teacher Needs Analysis Results

Based on the teacher needs questionnaire data, it was found that teachers always prepare and utilize learning tools (such as lesson plans, textbooks, worksheets, and learning media) in each lesson plan. Teachers in the learning process always discuss learning competencies, respond to the material and master the material. However, learning resources so far have not been sufficient and have not met the up-to-date reading content. Teachers have also used electronic media in learning but are limited to the use of presentation files. Teachers are still confused about integrating mathematics learning with Islam. No teachers use information technology (IT)-based learning with Islamic integration for environmental awareness and creativity in solving mathematical problems.

4. Learning Management

The results of the learning management questionnaire given to 3 educator respondents who became respondents can be seen in Table 1, which consists of planning, implementation and evaluation of learning obtained an average overall score of 76.40 in the Good category. Based on the results of questionnaires, interviews and direct observations of teachers in schools, information was obtained that the curriculum used was the 2013 curriculum; learning objectives refer to core competencies and basic competencies; Teachers have not made learning innovations, the media used to deliver material that is often used is the blackboard, but teachers occasionally use powerpoints because they have to take turns with other teachers; Characteristics of students in their varied learning styles, namely visual, auditory, kinesthetic, and group learning styles; Students in learning are generally passive; Learning resources used in learning are not complete; Students on average have android mobile facilities; On average, students and teachers want powerpoint facilities in learning; Teachers want examples of learning models that integrate mathematics learning with technology and Islam.

5. Design Stage Results

The results of the design phase are a) Formulated learning objectives that include cognitive domains that emphasize the level of creative thinking in solving mathematical problems; the affective domain, which refers to the attitudes and feelings of environmental awareness, as well as the psychomotor domain, which emphasizes actions and skills to construct understanding by experiencing; b) Formulated evaluation tools, namely tests of creative thinking skills, environmental awareness questionnaires; c) Determined learning strategies, namely delivery strategies used information technology (IT)-based learning with Islamic integration for environmental awareness and creativity in solving mathematical problems. The approach used is the approach recommended by the 2013 curriculum, namely the scientific approach. The media used are teaching aids in plastic tube and cone models, cardboard sheets, and computers. Use of computers to display GeoGebra GeoGebra integrated power points, audiovisuals, and assignment of math problems; d) Determination of learning materials, namely the selected learning materials are media development which includes teaching aids models of tubes and cones made of plastic, tube nets and cones made of cardboard, as well as the use of computers to display Geogebra integrated power points, audiovisuals, and assignment of math problems. This determination is based on: (1) the results of discussions with several subject teachers, mathematics learning media experts; and (2) considering the timing of the research. The materials used are teaching materials in a combination of printed and non-printed formats.

Based on the initial investigation and the design phase, it is poured into the form of the IICT model guide design and learning tools. The result of the IICT model design is the IICT model guideline format. The IICT model guide format contains an introduction, the contents of the IICT model, and instructions for implementing learning using the IICT model. The introduction contains the main considerations for the development of the IICT model. The content of the IICT model contains 5 (five) main components: syntax, social system, reaction principle, support system, and instructional impact and accompaniment impact. While the instructional implementation instructions contain things in the form of planning tasks, organizing learning with Islamic integration, helping students' environmental awareness activities, handling individual/group learning situations, and assessment tools. The result of the design of the learning device is to operationalize the components of the IICT model (syntax, social system, reaction principle, support system, instructional impact, and accompaniment impact) into the form of learning tools, in the form of learning implementation plans, textbooks, worksheets, media power points, and evaluation tools.

6. Realization Stage

Realization is carried out based on the results of the final preliminary analysis and design, then reflected and re-examined to be directed to the completion in the form of a prototype: (a) IICT model guidelines; and (b) learning tools; and (c) instruments.

7. IICT Model Guidelines Realization

The IICT model guide outlines the IICT model hypotheses as presented in Figure 1. Then, based on the IICT model hypotheses, a description of the IICT model is presented, namely:

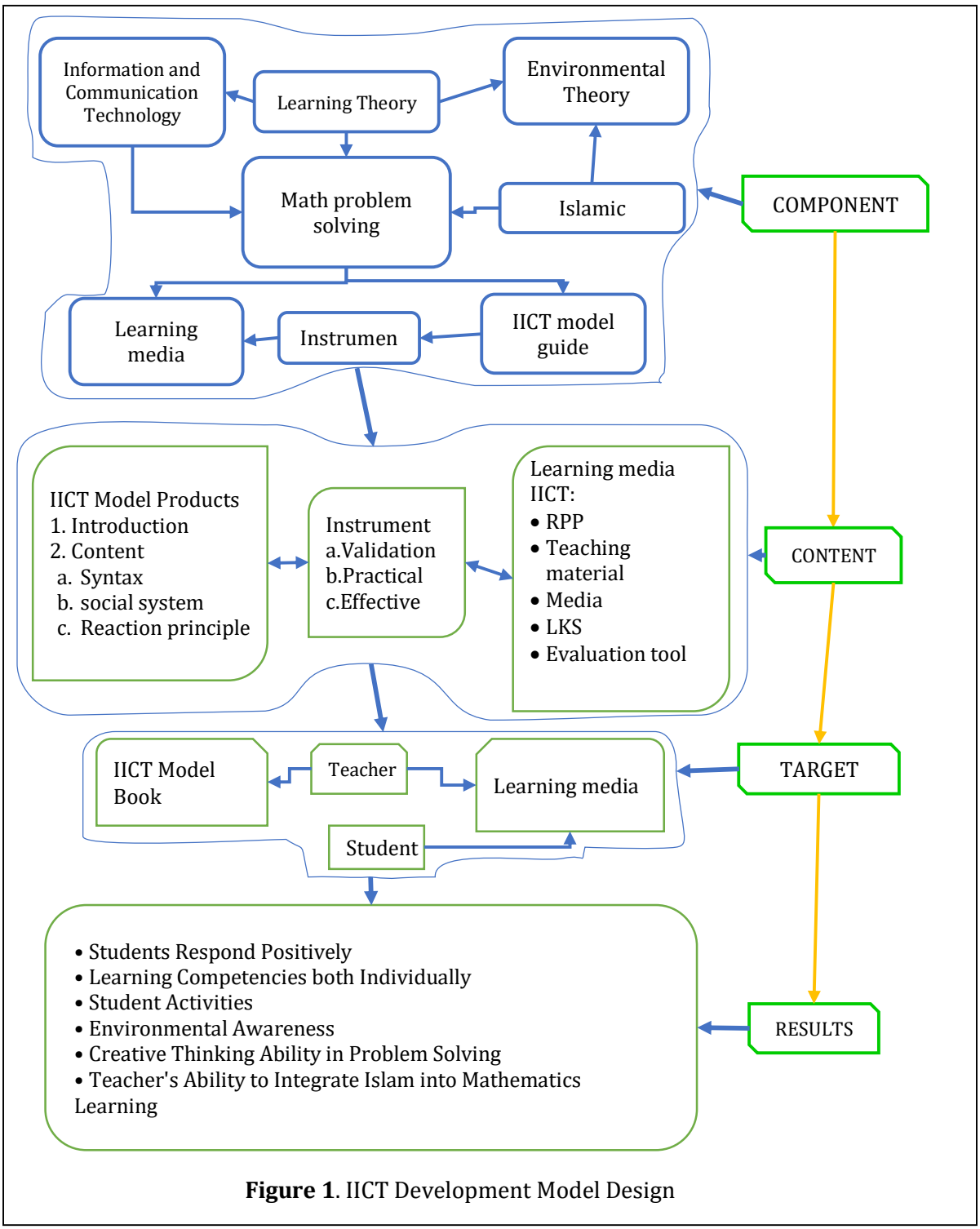


Figure 1. IICT Development Model Design

8. IICT Model Syntax

A learning model has syntax or stages of learning activities. These stages describe the model working in practice, such as how to start lessons and facilitate students in using learning resources. The syntax of the IICT model is designed by considering the views, behavioristic, cognitive, constructivist, information and communication technology developments, environmental knowledge, and Islam and is based on information processing learning theory. The IICT model syntax is presented in Table 2.

Table 2. IICT Model Syntax based on Hypothetical Model

Learning Phase	Activity	
	Teacher	**Student**
Phase I Observing students' prior knowledge	Setting Up Pretest	Doing pretest
Phase II Organizing students into study groups, conveying goals and motivating	Prepare and motivate students with Islamic learning etiquette to follow the learning process	Prepare yourself with Muslim learning manners, pray and listen to the benefits of the material to be studied
	Delivering learning objectives and material coverage	Read and understand the learning objectives & material coverage
	Divide groups heterogeneously and help each group make the transition efficiently	Group according to the teacher's direction
Phase III Presenting information and integrating Islam	Presenting material with realistic communication information technology devices with the outside world and students' daily environment	Pay attention to the delivery of material through technological devices
	Connecting students' prior knowledge with the material and its integration with Islamic	Connecting initial knowledge with the material and permeating Islamic
Phase IV Experience	Guiding students to take roles in conducting experiments based on LKS	Each takes a role in conducting experiments based on the LKS
	Guiding students in group discussions	Deepen the material through group discussion
	Encouraging students with Islamic values in learning	Pay attention to Islamic messages
Phase V Associating and Communicating	Guiding students to collect and analyze experimental data	Collect and analyze experimental data
	Guiding students to experiment individually with information technology devices	Conduct individual experiments with information technology devices
	Guiding students to present experimental results	Presenting experimental learning results
Phase VI Evaluation	Assigning students to solve creative problems individually	Assigning students to solve creative problems individually
	Preparing for Post-test	Doing post-test
	Inform the learning activity plan for the next meeting	Listening to the lesson plan for the next meeting

9. Validation Results

The results of the IICT model design development were further validated by learning design experts. The results of the IICT model design development were further validated by learning design experts. Learning design experts provide assessments, comments and suggestions for revisions related to the following aspects: (1) Identification of learning objectives of mathematics and students' environmental awareness; (2) The selection of thematic approaches in increasing environmental awareness and students' creativity in solving mathematical problems; (3) Development of an evaluation system for creativity skills in mathematical problem solving, environmental awareness, communication skills,

and collaboration skills; (4) Adjusting the learning environment in the learning process by experiencing problems; (5) Using learning tools and facilities of integrated Islamic information and communication technology in the learning process; (6) Showing the relationship between the results of creativity skills, mathematical problem solving, environmental awareness and Islamic. The results of the instrument feasibility assessment are summarized in Table 3.

Table 3. Results of Learning Device Validation

No	Learning Instruments	$\bar{X}$	Criteria
1	Lesson plan	0,82	Very valid
2	Teaching Material	0,83	Very valid
3	LKS	0,77	Valid
4	Creativity Test in solving mathematics problems	0,90	Very valid
5	Information and communication technology media (PPT)	0,85	Very valid

Table 3 shows that all instruments are very valid except the LKS instrument on valid criteria. The criteria used have an adequate degree of validity if the value of Va is in the minimally valid category, so it is feasible to use. While the level of instrument reliability using the percentage of agreements (PA) with the criteria of the instrument sheet is said to be reliable if the PA value is 0.71. It can be stated that all instruments are reliable. Thus, the instrument can collect data on the validity, practicality and effectiveness of the IICT model.

Table 4. Results of Validation of the IICT Model Guidelines

No	Rated aspect	Rating result			$\bar{X}$	Criteria
		1	2	3		
1	Introduction	1,01	0,51	1,01	0,84	Very valid
2	Contents of the IICT model				0,00	
	a. Syntax	0,84	0,84	0,84	0,84	Very valid
	b. Social system and Islamic integration	0,84	0,91	1,01	0,92	Very valid
	c. Reaction principle	0,81	1,01	0,81	0,88	Very valid
	d. Support system	0,84	1,01	1,01	0,95	Very valid
	e. Instructional impact and accompaniment	0,81	0,81	0,81	0,81	Very valid
3	Instructions for implementing learning				0,00	
	Creativity planning tasks in solving mathematics problems	0,74	0,91	1,01	0,89	Very valid
	Organizing	0,63	0,92	1.01	0,52	Very valid
	Help students' activities and environmental awareness	0,73	0,89	0,98	0,87	Very valid
	Handling individual/group learning situations	1,01	1,01	1,01	1,01	Very valid
	Evaluation	1,01	1,01	1,01	1,01	Very valid
4.	Language	0,68	0,74	0,91	0,78	Very valid
	Average	0,83	0,88	0,87	0,86	Very valid

Based on the data in Table 4, it can be concluded that the IICT model guidelines are very valid.

10. Extended trial results (field trial)

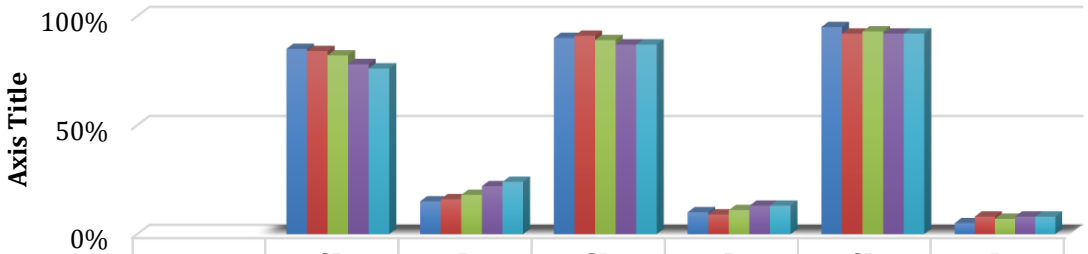
The achievement of creativity in solving mathematical problems in field trials was obtained by using a creativity test. The following is an illustration in Table 5.

Table 5. Distribution of student creativity test results in each session

I	II	III	Category
33%	35%	36%	very creative
54%	56%	58%	creative
12%	10%	6%	quite creative
0%	0%	0%	less creative
0%	0%	0%	not creative

Based on the frequency analysis of students' creativity tests in solving mathematical problems, it was found that learning in sessions I, II, and III was more than 80% of students obtained the minimum criteria for being creative. These results indicate that the creativity competence of students has met the criteria, namely at least 80% of students have obtained the creative minimum completeness criteria (KKM). In addition, Table 5 also shows the increase in students' creativity in solving math problems from session I to session III.

The improvement and achievement of students' creativity in solving math problems which are quite high, can not be separated from learning activities with the IICT model, which presents the material with realistic information and communication technology tools with the outside world and students' daily environment in the learning process. Connecting students' prior knowledge with the material and its integration with Islam. They are guiding students to take roles in conducting experiments based on worksheets with environmentally-friendly teaching aids. They encourage students with Islamic values in learning, guiding students to experiment individually with information and communication technology devices to make it easier to develop creativity. The increase and achievement of students' environmental awareness after learning can also be analyzed for each aspect, as shown in Figure 2.



		SB	B	SB	B	SB	B
		I		II		III	
Aspek 1		85%	15%	90%	10%	95%	5%
Aspek 2		84%	16%	91%	9%	92%	8%
Aspek 3		82%	18%	89%	11%	93%	7%
Aspek 4		78%	22%	87%	13%	92%	8%
Aspek 5		76%	24%	87%	13%	92%	8%

Figure 2. The increase and achievement of students' environmental awareness

Figure 2 is obtained from the analysis results with Ms. Office Excel 2013, and the results show an increase in aspects 1, 2, 3, 4, and 5 from a session I to session III. The majority of students are in the category of very good environmental awareness. Next is observing the teacher's ability to implement the IICT model learning.

Table 6. Results of Observation Analysis of Teacher Ability to Implement IICT Model Learning

No.	Observed Aspect	I	II	III	$\bar{x}$	Criteria
Phase I Observing students' prior knowledge	Setting Up Pretest	4,00	4,00	4,00	4,00	SB
Phase II Organizing students into study groups, conveying goals and motivating	Prepare and motivate students with Islamic learning etiquette to follow the learning process	3,50	4,00	4,00	3,83	SB
	Delivering learning objectives and material coverage	4,00	4,00	4,00	4,00	SB
	Divide groups heterogeneously and help each group make the transition efficiently	4,00	4,00	4,00	4,00	SB
Phase III Presenting information and Integrating Islamic	Presenting material with realistic communication information technology devices with the outside world and students' daily environment	3,00	3,50	4,00	3,50	SB
	Connecting students' prior knowledge with the material and its integration with Islamic	3,00	4,00	4,00	3,67	SB
Phase IV Experience	Guiding students to take roles in conducting experiments based on worksheets with environmentally-friendly teaching aids	4,00	4,00	4,00	4,00	SB
	Guiding students in group discussions	4,00	4,00	4,00	4,00	SB
	Encouraging students with Islamic values in learning	3,00	4,00	4,00	3,67	SB
Phase V Associating and Communicating	Guiding students to collect and analyze experimental data	4,00	4,00	4,00	4,00	SB
	Guiding students to experiment individually with information technology devices	3,50	4,00	4,00	3,83	SB
	Guiding students to present experimental results	4,00	4,00	4,00	4,00	SB
Phase VI Evaluation	Assigning students to solve creative problems individually	3,50	4,00	4,00	3,83	SB
	Preparing for Post-test	4,00	4,00	4,00	4,00	SB
	Inform the learning activity plan for the next meeting	4,00	4,00	4,00	4,00	SB
		Average			3,89	SB

Paying attention to Table 6 shows that the effectiveness of the IICT model is very good. The effectiveness is shown by the activities of teachers and students in learning, and student responses to learning in all aspects are in very good criteria. Data from Phase III to Phase VI show an increasing trend. Of the 15 aspects in the IICT Learning model, a significant increasing trend is presenting material with realistic information technology tools with the outside world and students' daily environment. This is due to the ease with which the teacher conveys the material, the attractiveness of the information technology devices used by the teacher, the enthusiasm of the students to receive from the teacher, and the suitability of the delivery of material by the teacher with the student's prior knowledge.

This study describes the Islamic integrated Information Communication Technology-Based Mathematics Learning model and environmental knowledge development. The development of the IICT Learning Model and its Effect on Student Activities and Environmental Awareness was carried out in six stages: Initial investigation, design, realization, test, evaluation, and revision. The resulting product is the design and syntax of the IICT Learning Model. Design experts first validate this product. Based on the evaluation results of the experts, it was shown that the design and syntax of the developed IICT learning model were suitable for use in learning. The application of this model in learning gives very positive results towards increasing students' creativity in solving mathematical problems, students' environmental awareness, and teachers' understanding of combining information technology and Islamic instruments.

There are many advantages of an integrated mathematics learning design with information technology facilities, including making it easier for students to complete their mathematical ideas (Darling-Hammond et al., 2020; Das, 2019; Hoyles, 2018). In addition, learning experiences with integrated information and communication technology enable students to communicate and collaborate both individually and in groups (Ansari & Khan, 2020; König et al., 2020) has a positive impact on the achievement of overall student learning outcomes. Furthermore, in integrated learning, information and communication technology trains students' and teachers' mathematical skills (Joshi, 2017; Novita & Herman, 2021). Furthermore, this learning can be a learning resource for teachers and students and allow them to share experiences and update themselves with the latest informative materials (Rana & Rana, 2020).

The next advantage of this learning model is that it integrates learning mathematics as a general science with religion or Islam. According to (Estrada et al., 2019), it is important to integrate religion into education to improve mental health. The internalization of religious morality in education helps develop healthier reactions to stimuli. Besides that, integrating religion in education can increase awareness about religious beliefs and practices and their impact on individuals, families, and society. This is supported by (Sayuti & Rahiem, 2020) that the application of science integration in universities or schools is very important, namely a policy of translating the concept of science integration into the learning management system, which is manifested in curriculum design and learning processes. Furthermore, according to (Arifudin, 2016), with the integration of science with religious knowledge, students will be invited to think holistically and not partially in living the plurality of beliefs and religions.

Another concern in this learning model is the influence on the ability to think creatively in solving mathematical problems and students' environmental awareness. Mathematics learning models that utilize information technology facilities can increase students' creative thinking (Tindowen et al., 2017; Wahyudi et al., 2020). Student creativity is obtained from individual experiments with information technology devices (Ansari & Khan, 2020; Sung et al., 2016). This can be realized well because of the support

from teachers who guide in optimizing the functions of information technology devices (S. Ayllón et al., 2019; Henriksen, 2016). In this case, the technological device facility is the Geogebra Application, which is included in PowerPoint, making it easier and faster for students to try out their mathematical ideas (Arini & Dewi, 2019; Tamam & Dasari, 2021) so that the components of fluency, flexibility, originality, and elaboration of creative thinking can be fulfilled by students through the use of GeoGebra (Alkhateeb & Al-Duwairi, 2019; Radović et al., 2020; Zulnaidi et al., 2020).

The next is about students' increasing environmental awareness due to religious messages about the importance of protecting the environment in learning (Muslih, 2021; Robina-Ramírez et al., 2020). In particular, the message of Islamic values in increasing students' environmental awareness (Koehrsen, 2021; Nuriman & Fauzan, 2017). In addition, the use of materials around the student's environment as teaching aids after using technology also greatly supports increasing students' environmental awareness (Arga & Rahayu, 2019; Licorish et al., 2018). Further support from (Ramadhani et al., 2020) is that using learning materials with the context of everyday life gives students new experiences to solve real problems in their lives, so students can explain how to solve problems of everyday life with mathematical modeling. As a result, learning with this model has provided positive support to students to ultimately improve creative thinking skills (Suganda et al., 2021).

D. CONCLUSION AND SUGGESTIONS

The results of this study conclude that the IICT Learning Model helps teachers integrate Islam in mathematics learning by presenting material with realistic information and communication technology tools with the outside world and students' daily environment and connecting students' prior knowledge with the material. They are increasing students' creativity in solving mathematical problems by conducting creative experiments and assignments based on LKS with environmentally-friendly teaching aids and individual and group experiments with information and communication technology tools. Increased environmental awareness of students due to motivation with Islamic learning manners to follow the learning process, use of environmentally friendly teaching aids, and Islamic messages during the learning process. With the help of teachers in integrating Islam with mathematics learning and increasing environmental awareness of students' creativity in solving mathematical problems. Mathematics teachers are advised to use the IICT learning model. This research was only conducted on the topic of curved side space and only focused on students' creativity in solving mathematical problems so that other researchers are advised to conduct similar research by considering the diversity of teaching materials and students' abilities.

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REFERENCES

Abdillah, A., Mastuti, A. G., Rijal, M., & Rahman, M. A. (2020). Students' Intuitive and Analytical Thinking in the Mathematics Study through the Integration of STAD and Environmental Islamic Jurisprudence (Fiqh). *Al-Jabar : Jurnal Pendidikan Matematika*, *11*(1), 49–60. https://doi.org/10.24042/ajpm.v11i1.6120

Akker, J. van den, Bannan, B., Kelly, A. E., Nieveen, N., & Plomp, T. (2013). *Educational Design Research*. Netherlands Institute for Curriculum Development (SLO), Enschede, the Netherlands. https://ris.utwente.nl/ws/portalfiles/portal/14472302/Introduction_20to_20education_20design_20research.pdf

Alabdulaziz, M. S. (2021). COVID-19 and the use of digital technology in mathematics education. *Education and Information Technologies*. https://doi.org/10.1007/s10639-021-10602-3

Ali, A. R. (2015). Environmental Awareness Level amongst Secondary School Students in Terengganu, Malaysia Based on Different Variables. *International Journal of Education and Research*, *3*(2), 135–152.

Aliman, M., Budijanto, Sumarmi, S., & Astina, I. K. (2019). Improving Environmental Awareness of High School Students' in Malang City through Earthcomm Learning in the Geography Class. *International Journal of Instruction*, *12*. https://doi.org/10.29333/iji.2019.1246a

Alkhateeb, M. A., & Al-Duwairi, A. M. (2019). The Effect of Using Mobile Applications (GeoGebra and Sketchpad) on the Students' Achievement. *International Electronic Journal of Mathematics Education*, *14*(3), 523–533. https://doi.org/10.29333/iejme/5754

Al-Mahasneh, R. (2018). The Role of Teachers in Establishing an Attractive Environment to Develop the Creative Thinking among Basic Stage Students in the Schools of Tafilah Governorate According to their own Perspective. *Journal of Curriculum and Teaching*, *7*(1), 206. https://doi.org/10.5430/jct.v7n1p206

Ansari, J. A. N., & Khan, N. A. (2020). Exploring the role of social media in collaborative learning the new domain of learning. *Smart Learning Environments*, *7*(1), 1–16. https://doi.org/10.1186/s40561-020-00118-7

Arga, H., & Rahayu, G. (2019). Influence of Environment-based Learning Materials to Improve the Eco-literacy of PGSD Students. *Mimbar Sekolah Dasar*, *6*, 208. https://doi.org/10.17509/mimbar-sd.v6i2.17521

Arifudin, I. (2016). *Integrasi Sains dan Agama serta Implikasinya terhadap Pendidikan Islam*. *1*(1), 161–179. https://doi.org/10.28918/jei.v1i1

Arini, F. Y., & Dewi, N. R. (2019). GeoGebraAs a Tool to Enhance Student Ability in Calculus. *KnE Social Sciences*, 205–212. https://doi.org/10.18502/kss.v3i18.4714

Asfar, A. M. I. T., Asmawaty, A., Asfar, A. M. I. A., & Nursyam, A. (2019). Mathematical Concept Understanding: The Impact of Integrated Learning Model. *Al-Jabar : Jurnal Pendidikan Matematika*, *10*(2), 211–222. https://doi.org/10.24042/ajpm.v10i2.3880

Ata-Aktürk, A., & Sevimli-Celik, S. (2020). Creativity in early childhood teacher education: Beliefs and practices. *International Journal of Early Years Education*. https://doi.org/10.1080/09669760.2020.1754174

Ayllón, M. F., Gómez, I. A., & Ballesta-Claver, J. (2016). Pensamiento matemático y creatividad a través de la invención y resolución de problemas matemáticos. *Propósitos y Representaciones*, *4*(1), 195–218. https://doi.org/10.20511/pyr2016.v4n1.89

Ayllón, S., Alsina, Á., & Colomer, J. (2019). Teachers' involvement and students' self-efficacy: Keys to achievement in higher education. *PLOS ONE*, *14*(5), e0216865. https://doi.org/10.1371/journal.pone.0216865

Bahrudin, E. R., & Siswono, T. Y. E. (2020). Mathematics Anxiety and Students' Creative Thinking Process in Solving Number Patterns Problems. *Journal of Mathematical Pedagogy (JoMP)*, *2*(1), Article 1. https://doi.org/10.26740/jomp.v2n1.p%p

Bloom, B. S., Hastings, J. T., & Madaus, G. F. (1981). *Methods Grading in Summative Evaluation*. MacGraw-Hill.

Damayanti, D. T., Sumarmo, U., & Maya, R. (2018). Improving Student's Mathematical Creative Thinking Ability and Self Regulated Learning using Sylver Approach. *(JIML) Journal of Innovative Mathematics Learning*, *1*(3), 173–183. https://doi.org/10.22460/jiml.v1i3.p268-278

Darling-Hammond, L., Flook, L., Cook-Harvey, C., Barron, B., & Osher, D. (2020). Implications for educational practice of the science of learning and development. *Applied Developmental Science*, *24*(2), 97–140. https://doi.org/10.1080/10888691.2018.1537791

Das, K. (2019). Role of ICT for Better Mathematics Teaching. *Shanlax International Journal of Education*, *7*(4), 19–28. https://doi.org/10.34293/ education.v7i4.641

Dick, W., Lou, C., & Carey, J. O. (2015). *Systematic Design of Instruction* (8th Edition). Pearson Education.

Estrada, C. A. M., Lomboy, M. F. T. C., Gregorio, E. R., Amalia, E., Leynes, C. R., Quizon, R. R., & Kobayashi, J. (2019). Religious education can contribute to adolescent mental health in school settings. *International Journal of Mental Health Systems*, *13*(1), 28. https://doi.org/10.1186/s13033-019-0286-7

Faisal, & Martin, S. N. (2019). Science education in Indonesia: Past, present, and future. *Asia-Pacific Science Education*, *5*(1), 1–29. https://doi.org/10.1186/s41029-019-0032-0

Henriksen, D. (2016). The seven transdisciplinary habits of mind of creative teachers: An exploratory study of award winning teachers. *Thinking Skills and Creativity*, *22*, 212–232. https://doi.org/10.1016/j.tsc.2016.10.007

Hidayaturrahman, M., Sudarman, S., Husamah, H., & Kusumawati, I. R. (2021). Integrating Science and Religion at Malaysian and Indonesian Higher Education. *Al-Ta Lim Journal*, *28*(1), 55–66. https://doi.org/10.15548/jt.v28i1.658

Hillmayr, D., Ziernwald, L., Reinhold, F., Hofer, S. I., & Reiss, K. M. (2020). The potential of digital tools to enhance mathematics and science learning in secondary schools: A context-specific meta-analysis. *Computers & Education*, *153*, 103897. https://doi.org/10.1016/j.compedu.2020.103897

Hoyles, C. (2018). Transforming the mathematical practices of learners and teachers through digital technology. *Research in Mathematics Education*, *20*(3), 209–228. https://doi.org/10.1080/14794802.2018.1484799

Joshi, D. (2017). Influence of ICT in Mathematics Teaching. *International Journal of Innovative Research & Growth*, *3*(1), 7–11.

Joyce, B. R., Weil, M., & Emily, C. (2009). *Models of teaching*. Pearson/Allyn and Bacon Publishers. https://www.worldcat.org/title/models-of-teaching/oclc/894571125#borrow

Jusoh, S., Kamarudin, M. khairul amri, Abd Wahab, N., Saad, M., Rohizat, N., & Mat, N. (2018). Environmental Awareness Level Among University Students in Malaysia: A Review. *International Journal of Engineering & Technology*, *7*, 28. https://doi.org/10.14419/ijet.v7i4.34.23575

Kaur, J. (2017). Environmental Awareness among +1 class school students of Hoshiarpur District. *IOSR Journal of Humanities and Social Science*, *22*(07), 07–12. https://doi.org/10.9790/0837-2207020712

Kelley, T. R., & Knowles, J. G. (2016). A conceptual framework for integrated STEM education. *International Journal of STEM Education*, *3*(1), 11. https://doi.org/10.1186/s40594-016-0046-z

Koehrsen, J. (2021). Muslims and climate change: How Islam, Muslim organizations, and religious leaders influence climate change perceptions and mitigation activities. *WIREs Climate Change*, *12*(3), 1–19. https://doi.org/10.1002/wcc.702

König, J., Jäger-Biela, D. J., & Glutsch, N. (2020). Full article: Adapting to online teaching during COVID-19 school closure: Teacher education and teacher competence effects among early career teachers in Germany. *European Journal Of Teacher Education*, *43*(4), 608–622. https://doi.org/10.1080/02619768.2020.1809650

Kupers, E., Lehmann-Wermser, A., McPherson, G., & van Geert, P. (2019). Children's Creativity: A Theoretical Framework and Systematic Review. *Review of Educational Research*, *89*(1), 93–124. https://doi.org/10.3102/0034654318815707

Licorish, S. A., Owen, H. E., Daniel, B., & George, J. L. (2018). Students' perception of Kahoot!'s influence on teaching and learning. *Research and Practice in Technology Enhanced Learning*, *13*(1), 1–23. https://doi.org/10.1186/s41039-018-0078-8

Marcinkowski, T., & Reid, A. (2019). Reviews of research on the attitude–behavior relationship and their implications for future environmental education research. *Environmental Education Research*, *25*(4), 459–471. https://doi.org/10.1080/13504622.2019.1634237

Masadeh, T. S. (2021). Teaching Practices of EFL Teachers and the Enhancement of Creative Thinking Skills among Learners | International Journal of Asian Education. *International Journal of Asian Education*, *2*(2), 153–166. https://orcid.org/0000-0001-9911-4830

Morais, M. de F., Viana, F. L., Fleith, D. de S., & Dias, C. (2019). Climate scale for creativity in the classroom: Evidence of factorial validity in the portuguese context. *Temas Em Psicologia*, *27*(4), 837–849. https://doi.org/10.9788/TP2019.4-02

Moraru, M. (2019). Improving School Climate through the Teachers' and Students' Creativity. *Journal of Pedagogy*, *2*, 139–149.

Muslih, M. (2021). Gender and Environmental Literacy on Islamic-based High School Students Under Spiritual Values. *MUWAZAH: Jurnal Kajian Gender*, *13*(1), 41–60. https://doi.org/10.28918/muwazah.v13i1.3427

Muspiroh, N. (2019). Integrasi Nilai-Nilai Islam dalam Pembelajaran IPA di Sekolah. *Quality*, *2*(1), 168–188. http://dx.doi.org/10.21043/quality.v2i1

Nakano, T. de C., & Wechsler, S. M. (2018). Creativity and innovation: Skills for the 21st Century. *Estudos de Psicologia (Campinas)*, *35*(3), 237–246. https://doi.org/10.1590/1982-02752018000300002

Naz, F., & Murad, H. S. (2017). Innovative Teaching Has a Positive Impact on the Performance of Diverse Students: *SAGE Open*, *October-December*, 1–8. https://doi.org/10.1177/2158244017734022

Novita, R., & Herman, T. (2021). Digital technology in learning mathematical literacy, can it helpful? *Journal of Physics: Conference Series*, *1776*(1), 1–9. https://doi.org/10.1088/1742-6596/1776/1/012027

Novita, R., & Putra, M. (2016). Using Task Like PISA'S Problem To Support Student's Creativity in Mathematics. *Journal on Mathematics Education*, *7*(1), 31–42. https://doi.org/10.22342/jme.7.1.2815.31-42

Nuriman, N., & Fauzan, F. (2017). The Influence of Islamic Moral Values on the Students' Behavior in Aceh. *Dinamika Ilmu*, *17*(2), 275–290. https://doi.org/10.21093/di.v17i2.835

Nurzulifa, S., & Dwijanto, D. (2021). Creative thinking mathematical ability of students in Treffinger learning based on cognitive style. *Unnes Journal of Mathematics Education*, *10*(1), 52–61. https://doi.org/10.15294/ujme.v10i1.32402

Qadri, L., Ikhsan, M., & Yusrizal, Y. (2019). Mathematical Creative Thinking Ability for Students Through REACT Strategies. *International Journal for Educational and Vocational Studies*, *1*(1), 58–61. https://doi.org/10.29103/ijevs.v1i1.1483

Radović, S., Radojičić, M., Veljković, K., & Marić, M. (2020). Examining the effects of Geogebra applets on mathematics learning using interactive mathematics textbook. *Interactive Learning Environments*, *28*(1), 32–49. https://doi.org/10.1080/10494820.2018.1512001

Ramadhani, R., Farid, F., Lestari, F., & Machmud, A. (2020). Improvement of Creative Thinking Ability through Problem-Based Learning with Local Culture Based on Students' Gender and Prior Mathematics Ability. *Al-Jabar : Jurnal Pendidikan Matematika*, *11*(1), 61–72. https://doi.org/10.24042/ajpm.v11i1.4961

Rana, K., & Rana, K. (2020). ICT Integration in Teaching and Learning Activities in Higher Education: A Case Study of Nepal's Teacher Education. *Malaysian Online Journal of Educational Technology*, *8*(1), 36–47. https://doi.org/10.17220/mojet.2020.01.003

Ratnaningsih, N. (2018). The Analysis of Mathematical Creative Thinking Skills and Self-Efficacy Og High Students Built Through Implementation of Problem Based Learning and Discovery Learning. *JPMI (Jurnal Pendidikan Matematika Indonesia)*, *2*(2), 42–45. https://doi.org/10.26737/jpmi.v2i2.219

Robina-Ramírez, R., Sánchez-Hernández, M. I., Jiménez-Naranjo, H. V., & Díaz-Caro, C. (2020). The Challenge of Greening Religious Schools by Improving the Environmental Competencies of Teachers. *Frontiers in Psychology*, *11*, 1–12. https://doi.org/10.3389/fpsyg.2020.00520

Sayuti, W., & Rahiem, M. D. H. (2020). A Comparison of Science Integration Implementation in Two State Islamic Universities in Indonesia. *Madania: Jurnal Kajian Keislaman*, *24*(1), 109–120. https://doi.org/10.29300/madania.v24i1.3293

Šorytė, D., & Pakalniškienė, V. (2019). Why it is important to protect the environment: Reasons given by children. *International Research in Geographical and Environmental Education*, *28*(3), 1 14. https://doi.org/10.1080/10382046.2019.1582771

Subchi, I. (2020). The Implementation of Integration of Religion and Science at State Islamic Higher Education. *Jurnal Penelitian*, *17*(2), 117–130. https://doi.org/10.28918/jupe.v17i2.2776

Suganda, E., Latifah, S., Irwandani, Sari, P. M., Rahmayanti, H., Ichsan, I. Z., & Mehadi Rahman, Md. (2021). STEAM and Environment on students' creative-thinking skills: A meta-analysis study. *Journal of Physics: Conference Series*, *1796*(1), 1–9. https://doi.org/10.1088/1742-6596/1796/1/012101

Sung, Y.-T., Chang, K.-E., & Liu, T.-C. (2016). The effects of integrating mobile devices with teaching and learning on students' learning performance: A meta-analysis and research synthesis. *Computers & Education*, *94*, 252–275. https://doi.org/10.1016/j.compedu.2015.11.008

Tamam, B., & Dasari, D. (2021). The use of Geogebra software in teaching mathematics. *Journal of Physics: Conference Series*, *1882*(1), 1–6. https://doi.org/10.1088/1742-6596/1882/1/012042

Tindowen, D. J. C., Bassig, J. M., & Cagurangan, J.-A. (2017). Twenty-First-Century Skills of Alternative Learning System Learners. *SAGE Open*, *7*(3), 1–8. https://doi.org/10.1177/2158244017726116

Ummah, S. K., In'am, A., & Azmi, R. D. (2019). Creating Manipulatives: Improving Students' Creativity through Project-Based Learning. *Journal on Mathematics Education*, *10*(1), 93–102. https://doi.org/10.22342/jme.10.1.5093.93-102

Wahyudi, W., Waluya, S. B., Suyitno, H., & Isnarto, I. (2020). The impact of 3CM model within blended learning to students' creative thinking ability. *Journal of Technology and Science Education*, *10*(1), 32–46.

Zaenuri, Z., Sudarmin, S., Utomo, Y., & Juul, E. (2017). Habituation Model of Implementing Environmental Education in Elementary School. *Jurnal Pendidikan IPA Indonesia*, *6*(2), 206–212. https://doi.org/10.15294/jpii.v6i2.10200

Zulkifli, Z., Nurhayati, C., Ruswandi, B., & Suralaga, F. (2020). Plural Conceptions of Integration of Science and Religion. *TARBIYA: Journal of Education in Muslim Society*, *7*(2), 142–157. https://doi.org/10.15408/tjems.v7i2.18991

Zulnaidi, H., Oktavika, E., & Hidayat, R. (2020). Effect of use of GeoGebra on achievement of high school mathematics students | SpringerLink. *Education and Information Technologies Volume*, *25*, 51–72. https://doi.org/10.1007/s10639-019-09899-y